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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/722,996  
Filing Date: November 27, 2000  
Appellant(s): SUN, JIMING

**MAILED**

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**Technology Center 2600**

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Charles E. Steffey  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 05/25/2005 appealing from the Office action mailed 11/02/2004.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

5,832,296	Wang et al.	11-1998
6,570,556	Liao et al.	05-2003
5,481,265	Russell	01/1996

5,638,092

Eng et al.

06/1997

**(8) Evidence Relied Upon**

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 5-8, 10-11, 13-19, 21-22, 24-25, 27-28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (US Patent NO. 5,832,296, hereinafter referred to as Wang) in view of Liao et al. (US patent NO. 6,570,556; hereinafter referred to as Liao).

As to independent claim 1, Wang (figure 1) teaches a pointing device (10) which includes a ring (12), a sensor unit comprising a sensor (16) in substantially circular pattern and mounted on the ring, and wherein the sensor unit is adapted to create position information (col. 4, lines 21-38). The sensor is adapted to control a pointer on a display screen (col. 7, lines 6-18), and a controller (processor 42) for creating a position based on activation of the sensor (col. 5, lines 25-35).

Wang does not expressly teach that the sensor unit (16) comprises a plurality of sensors, and wherein each sensor can be activated for positioning the pointer on the display screen.

However, Liao teaches a pointing device to control a pointer on a display that includes a plurality of sensors (422) in a substantially circular pattern to activate positioning the pointer on the display screen (figures 4 and col. 2, line 57 through col. 3, line 14).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the sensors taught by Liao to replace the sensor (16) of Wang's device so as motivated by Liao, to increase the conductivity of the pointing device (col. 1, lines 54-57), as well as to provide an accurate movement of the cursor by providing a plurality of sensors.

As to claim 2, as can be seen in figure 2, the ring (12) is a size that is capable of being worn by a human digit.

As to claim 5, as can be seen in figure 2, Wang shows that the pointing device is capable of being operated by human thumb.

As to claim 6, as can be seen in figure 3, Wang shows a controller (processor 42) mounted to the ring wherein the controller is coupled to the sensor (14, 16, 18 and 20), a transmitter (48) coupled to the controller to translate the signal to movement information (col. 5, lines 18-50).

As to claim 7, Wang teaches that the pointing device (12) can be used as a mouse (abstract), which inherently means that the device control a pointer on a display.

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As to claim 8, Wang teaches that the pointing device (12) includes, a pressure sensor (14) (col. 4, lines 23-26).

As to claims 10-11, Wang shows that the sensors are pressure sensors, which may be either inductance or capacitance.

As to claims 13-19, 21-22, 24-25, 27-28 and 30, the claims are similar to claims 1-2, 5-8 and 10-11, and would be analyzed as previously discussed with respect to these claims.

Claims 3-4 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang and Liao in view of Eng et al. (US patent NO. 5,638,092 hereinafter referred to as Eng).

As can be seen above, Wang teaches all the limitations of claims 3-4 and 20 except the citations of having selection button mounted on the ring and wherein the selection button is capable of being operated by a human thumb.

However, Eng (figure 1) teaches a pointing device (101) that include a selection button (120) which can be operated by the user's thumb (col. 3, line 46 through col. 4, line 9).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the teaching of Eng having a selecting switch mounted on the ring to be incorporated to Wang's device so as to be able to

easily use the device as an input device (mouse), which make the device user friendly, as well as to increase the versatility of the device.

Claims 9, 12, 23, 26 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang and Liao in view of Russell (US patent NO. 5,481 ,265).

As to claims 9 and 23, Wang does not teach that the plurality of sensors are rocker switches (note that Eng teaches that a touch sensitive pad is preferred to a mechanical switch because of the force required to activate or deactivate a mechanical switch can cause unwanted finger motion (col. 5, lines 30-33) which clearly suggests that a mechanical switches can be used.

However, Russell (figures 1A, 1B and 7B) teaches a user interface (10) that can be worn in the user's finger, and wherein the device includes a plurality of mechanical switches (1a, 1b, 1c and 1d) (col. 1 1, lines 7-27, and 51-61).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the teaching of Russell having mechanical switches to replace Wang's touch switches, because as described above by Eng, mechanical switches may be used, which make such choice purely designed choice based on the environment and the way in which the device operated.

As to claims 12, 26 and 29, Wang does not expressly teach using infrared to transmit the information.

However, Russell teaches a pointing device which uses infrared to transmit the information to the computer device (col. 6, lines 41-44).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the teaching of Russell using an infrared transmitter to be used in Wang's transmitter because infrared technology is known for its reliability and efficiency. Furthermore, Russell teaches that transmitter can be any of the known technologies (infrared, radio and acoustic). Therefore, using any of these methods is also based on the designer choice.

#### **(10) Response to Argument**

Appellant (middle of page 10) argued that neither the references nor knowledge generally available to one of ordinary skill in the art provide any suggestion or motivation to combine Liao and Wang. Appellant admitted that the Examiner provided a motivation cited in the Final Office "to increase conductivity of the pointing device." However, Appellant argued that Wang does not indicate that its device lacks conductivity or that it would have benefit from increased conductivity, and that Wang never mentions conductivity at all. Examiner respectfully disagrees.

First, the need to combine does not have to be in the primary reference (Wang). The motivation to combine is usually taught by the secondary reference in which the missing limitations and the motivations are included. It is clear that Wang will not show that his device lacks conductivity, because when inventor describes his/her invention, he/she only shows the benefits of the invention. When it comes to conductivity, it is inherently known that to use a sensor to sense the position information, an electric signal is created. Therefore, by having multiple sensors all around a circle, the sensing accuracy increases because the conductivity has increased. Therefore, Examiner firmly

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believes that the motivation provided in the rejection above fairly applies to the claimed limitations.

Appellant (top of page 11) argued that the Office action asserted that Wang is combined with Liao "to provide an accurate movement of the cursor by providing a plurality of sensors.", and that Wang never mentions a deficiency in cursor movement accuracy. Examiner again emphasizes what is stated above, that when inventor describes his/her invention, he/she only shows the benefits of the invention. Therefore, rarely, an inventor will mention any deficiencies in his/her invention. When the Examiner stated that combining Liao to Wang to provide an accurate movement of the cursor by providing a plurality of sensors; the Examiner simply shows that by providing multiple sensors all around a circle, the sensing accuracy increases because the conductivity has increased.

Appellant (middle of page 11) argued that the Examiner contends the combination of Wang and Liao is based on a suggestion from knowledge available to one of ordinary skill in the art, but the Examiner did not provide a reference or affidavit to show the existence of such knowledge. Examiner respectfully disagrees. First, the examiner shows that the reason to combine is taught by the secondary reference (Laio) as shown in the rejection above. Second, Examiner believes that it is not necessary that the references actually suggest, expressly or in so many words, the changes or improvements that applicant has made. The test to combine references is what the references, as a whole would have suggested to one of ordinary skill in the art. (In re Sheckler, 168 USPQ 716 (CCPA 1971). Therefore, the motivation of providing an

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accurate movement of the cursor by providing a plurality of sensors, stated by the Examiner in the rejection is clearly suggested by the motivation in Liao's reference of increasing the conductivity because as shown above, by providing multiple sensors all around a circle, the sensing accuracy increases because the conductivity has increased.

Appellant (bottom of page 11) argued that altering Wang's device to include Liao's sensors would render Wang's device inoperable and unsatisfactory for its intended purpose. Examiner respectfully disagrees. The examiner is aware that the pluralities of sensors in Liao are disposed on a pointing stick. The examiner never mentioned replacing the sensor of Wang with the pointing stick of Liao. The examiner simply states that the plurality of sensors (shown in figure 4) in Liao replace the sensor of Wang. In other word, the teaching of having plurality of sensors shown in Liao's device is to be incorporated to the sensor (16) of Wang. The combination would result in a device that look like Wang's figure 1, with a circular sensor (16) having a plurality of sensors disposed on that circle. This device fairly reads on the claimed limitation without making Wang' s device inoperable.

Appellant (middle of page 12) argued that the combination of Liao and Wang does not teach all the elements of each of the rejected claims. Appellant argued that Wang does not teach "controller adapted to create position information based on activation of one or more of the plurality of sensors." Examiner respectfully disagrees. It is clear from the cited passage and figure 4 that a controller (processor 42) is used to

create signal received from the sensor (16) (two dimensional sensor described in col. 7, lines 6-15) and then transmitted to the transceiver.

Appellant (top of page 13) argued that Liao does not the claimed "wherein each of the plurality of sensors can be activated for positioning the pointer on the display screen." Appellant cited only a portion of the portion cited by the Examiner. The passage clearly shows using the sensor to position the pointer on the display screen. Examiner sees no other apparent and inherent use for a pointing stick (which includes plurality of sensors) than controlling the pointer on the display screen (see Liao's abstract).

Appellant (bottom of page 13) argued that claim 6 recites, "the controller is to translate a signal from the sensor unit to the position information, and wherein the transmitter is to transmit the position information.", and that claim 18 recites a similar feature, which is not taught by Wang. Examiner cited figure 3, which clearly shows controller (processor 42) connected to the sensor (16) to transmit the signal from sensor 16 to transceiver 48 for transmitting the signals.

Appellant (page 14) argued claim 7 recites, "the movement information contains relative position information regarding the pointer displayed on the display screen." Appellant argued that using the device as a mouse does not inherently teach the claimed limitation. Examiner believes that the limitation is inherently taught by Wang's device based on the fact that the device is used as a wireless mouse.

**(11) Related Proceeding(s) Appendix**

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No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Amr A. Awad

**AMR A. AWAD**  
**PRIMARY EXAMINER**  
*Amr A. Awad*

Conferees:

*Sumati Lefkowitz*  
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